

# PROCEEDINGS OF THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

## SERIES C. JOURNAL OF MEETINGS

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VOLUME 16.

No. 5, 1951

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### ORDINARY MEETING

WEDNESDAY, 6TH JUNE, 1951, at 5.30 p.m.

#### AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 2nd May, 1951.
2. Recommendations of candidates for Fellowship.
3. Announcement of election of new Fellows.
4. Additions to the Library.

#### *Presented.*

Chester Society of Natural Science, Literature and Art. *Cheshire and North Wales Natural History*. Vol. III. 8vo. Chester. 1950. [The Society.]

British Museum (Natural History). *Furniture Beetles*. [New edn.] 8vo. London. 1951. [Economic series No. 11.] [The Trustees of the British Museum.]

#### *Purchased.*

Hansen, Victor. *Korchs atlas over Danske Biller*. Sm. 8vo. København. 1950.

In addition, separates were presented by Mr. John Ash, Colonel Niall MacNeill, Dr. V. B. Wigglesworth, Mr. A. L. Capener, Companhia de Diamantes de Angola, Capt. T. Dannreuther, Mr. D. K. McE. Kevan, Dr. A. J. Nicholson, Mr. K. G. V. Smith, Mr. H. M. Morris, Mr. H. E. Box, The American Entomological Society, and Dr. N. E. Hickin.

5. Admission of Fellows.
6. Papers accepted for publication in the *Transactions*.
7. Exhibits.

Fellows are particularly requested to bring suitable exhibits to the Meeting even though it may not be possible to announce their intention to do so beforehand.

8. Communications,

### 1. Dr. H. E. Hinton.

New and little known adaptations to environments that are alternately dry and flooded.

#### [ABSTRACT]

(1) It has been found that the larvae of an African Chironomid (*Polypedilum vanderplanki*, sp. n.) can withstand an extreme degree of desiccation for more than 12 months. If placed in water at any time during this period they recover rapidly and in time produce apparently normal adults.

(2) The pupae of some Empididae that pupate in running water are so adapted that beneath the water they breathe with cuticular gills, but when the water level drops sufficiently to leave them dry, they have an open tracheal system. The adult is able to shed its pupal cuticle either in or out of the water.

(3) The conversion of a temporary physical gill of the bubble type into a semi-permanent physical gill occurs in some aquatic environments.

(4) Many species of terrestrial Tipulid larvae have a kind of plastron that enables them to survive beneath water under conditions in which normally aquatic Tipulid larvae drown.

### 2. Dr. J. R. Busvine.

The Mosquito eradication campaign in Cyprus.

#### [ABSTRACT]

Epidemic malaria in Cyprus has, for centuries, depressed the standards of life, particularly in rural areas; though control measures have decreased its severity in recent decades. From 1946 to 1949 a campaign was initiated to eradicate Anopheline mosquitoes from the island. By intensive systematic control measures, the island was virtually cleared in three stages. Though it is still uncertain whether the suppression of the mosquitoes will be permanent, the malaria has been brought down from some ten thousand cases a year to a doubtful one or two.

A colour film taken in Cyprus in July, 1948, gives some idea of the scenery and people of the island and illustrates the various operations in the eradication programme.

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TEA will be served in the Library before the meeting.

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## NOTICES

### ADMISSION OF FELLOWS

Any Fellow who has not been formally admitted to the Society under Chapter XIV, Section 4 of the Bye-laws and attends the meeting on 6th June, 1951, is requested to inform the Secretary before 5.15 p.m. on that date.

### 1951 (London) Congress of British Entomologists.

#### Afternoon Reception in the Society's Rooms on Friday, 22nd June.

A reception in honour of members of the above Congress will be held in the Society's Rooms on Friday, 22nd June, from 3.30-6.0 p.m. The occasion will take the form of an afternoon tea party and conversazione with (so far as space permits) exhibits and film shows in the meeting room.



Formal invitation cards will not be issued, but to enable the necessary catering arrangements to be made, Fellows who expect to be present are particularly asked to complete and return the enclosed postcard as soon as possible, and in any case not later than 12th June.

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**Festival of Britain and IXth International Congress of Entomology,  
Amsterdam, 17th-24th August, 1951.**

The Council of the Society wishes to assist entomologists from overseas who may be visiting England and Holland in connection with the above events. Visiting entomologists will be invited to use the Society's rooms, but, in addition, it is hoped that some Fellows will be able to offer personal hospitality.

Fellows who are able to offer such hospitality are invited to do so through the Society, by writing to the Secretary indicating whether their offer applies to (1) a particular entomologist, (2) a person interested in a particular branch of entomology, or (3) any visiting entomologist, and to add the nature of the hospitality available.

Invitations relating to the periods immediately before or after the Amsterdam Congress are likely to be of most value to visitors.

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**JULY AND SEPTEMBER MEETINGS.**

**Alteration of Arrangements**

*July.*—The Council of the Society has accepted an invitation from the Vice-Chancellor of the University of Manchester to hold the July meeting of the Society in Manchester to enable Fellows of the Society living in the South to meet northern entomologists. The Meeting normally due to be held on 4th July will therefore be replaced by a week-end meeting from **20th to 22nd July, to be held in the University of Manchester.** Further details will be circulated as soon as available.

*September.*—For the benefit of overseas entomologists passing through London on their way to the Amsterdam Congress, the Council has decided to hold an Ordinary Meeting on **Wednesday, 15th August.** This will replace the meeting normally due for 5th September.

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**PROCEEDINGS OF THE ORDINARY MEETING HELD ON 2ND MAY, 1951.**

Mr. N. D. Riley, President, in the Chair.

Present, 83 Fellows and 17 Visitors.

Professor Carpenter said that as a result of a further discussion with Dr. Hinton he now realized he was in error in suggesting in his remarks comprising the footnote on page 21 that Dr. Hinton was not acquainted with Dr. Zeuner's paper. He apologized for the misleading impression given, and said that there was in fact no fundamental difference of opinion between them.

The Minutes of the Ordinary Meeting held on 4th April, were confirmed and signed by the President.

The President announced the deaths of H. St. J. K. Donisthorpe, elected a Fellow in 1891, and a Special Life Fellow in 1950; of T. Bainbrigge Fletcher, elected in 1898, and of J. A. Simes, elected in 1911.

The President extended a welcome to Dr. Selahattin Okay, of the University of Ankara, and to Father Francisco Pereira, a Coleopterist, of the Department of Zoology, State Department of Agriculture, Sao Paulo, Brazil, now on a visit to this country.

The names of the following candidates for election were read for the first time : Dr. Leonard Broadbent, Miss D. E. Griffin and M. L. Purohit, B.Sc.

For the second time (taken as read) : J. C. de Melo Carvalho, M.Sc., Ph.D., and Max Isbill.

The Secretary read the names of the following newly elected Fellows of the Society : M. Bibikoff, Edmondscote Manor, Warwick New Road, Leamington Spa, Warwickshire ; I. G. Farwell, Mayfield Villa, Portmore, Lymington, Hants. ; Miss M. E. Godfrey, B.Sc., A.R.C.S., 229, Ashcroft Road, Luton, Beds. ; E. Gowing-Scopes, Oakhurst, Oakwood Road, Crofton, Orpington, Kent ; R. I. Lorimer, Braeside, Pine Grove, Totteridge, London, N. 20 ; R. B. W. Lowndes, 52, Brandwood Park Road, King's Heath, Birmingham, 14.

Thanks were voted to donors of gifts to the Library since the last meeting.

Dr. J. C. Basu Choudhuri, Mr. R. L. Edwards, Mr. G. R. Gradwell, and Mr. D. J. W. Rose signed the Obligation Book and were admitted Fellows of the Society.

The Secretary made a preliminary announcement of the details of the programme for the meeting to be held in Manchester on 21st and 22nd July. He said the proceedings would open on Saturday morning with a reception by the Vice-Chancellor, Sir John Stopford, M.D., F.R.S., and would be followed by a scientific meeting. In the afternoon Professor H. Graham Cannon, F.R.S., would introduce an exhibition of specimens by members of northern entomological societies and in the evening a reception by the President would be followed by dinner in Ashburne Hall.

On Sunday, if the weather permitted, it was hoped to arrange small collecting parties. A visit to Manchester Museum was planned, where exhibits would be displayed by the Entomological Department and short papers given by Northern entomologists.

He also said that accommodation would be available at Ashburne Hall at a charge of 35s. plus 5 per cent. (provided 50 or more took advantage of the facilities). Full details would shortly be circulated to Fellows.

Dr. K. L. Boratynski exhibited microscope slides of the early stages of *Matsucoccus pini* Green and *Steingelia gorodetskia* Nasonow (Homoptera : Coccoidea).

He said that *Steingelia gorodetskia* is bisexual ; it has one generation in the year and hibernates in the intermediate stage. The feeding stages are passed in crevices of the bark (main trunk and roots) of the birch, *Betula alba*. The demonstration showed the developmental series of both male and female and living adults. The males were discovered by E. E. Green in 1920 and ascribed to this species on the basis of circumstantial evidence connected with their discovery. Morphological evidence (lack of compound eyes and other structural details characteristic of the male Margarodid) strongly favoured the view that this coccid was in reality the male of a species of some other group of coccids (Morrison, 1928), but the intermediate stages now discovered, and the observed mating of the two sexes confirmed Green's view.

He went on to say that *Matsucoccus pini* (Green) was a very inconspicuous species, and for most of its life remained stationary, concealed under the bark scales of pines, *Pinus sylvestris*. The species was parthenogenetic, and had two



well separated generations in the year. The adult females of the spring generation, which hibernated in the larval stage, appear in the second half of May; the summer generation developed in three months (June to August–September), the adult females of this generation appearing in September. The species was found in Sussex, Surrey, Berks, Hants.

The demonstration showed the developmental series and the living intermediate stage.

Miss T. Clay described the case of a species of Mallophaga (*Colpocephalum heterosoma*) parasitic on the flamingoes (*Phoenicopterus*) in which the males show an unusually large range in size together with heterogony of certain characters, making the extremes appear very distinct. In general, the individuals of a species of Mallophaga are remarkably uniform in size, presumably as a result of the abundant food supply and the constancy of the temperature and humidity of the environment. It is not possible to account for the large range in size of the males of this particular species, but possible environmental influences are population size, about which little reliable information is available; or the position on the body of the host in which the nymphs are reared, with the differences in feather structure and in temperature and humidity in the more exposed parts of the body, such as the head.

Dr. N. E. Hickin exhibited a living specimen of the Cerambycid beetle, *Pyrrhidium sanguineum* L. reared by him from a log of oak from France, which had been in this country about two years. He said the species was previously only doubtfully recorded as British, but he now believed it had been found in the wild state in this country. Dr. Hobby said that Mr. Lloyd had taken it at Moccas Park, Herefordshire, the capture having been confirmed by Mr. Allen.

Dr. J. T. Salmon read a paper on the role of Collembola in zoogeography, an abstract of which appeared on page 18.

In the discussion which followed, the Honorary Secretary (Mr. E. B. Britton) said he could not agree that it was necessary to know why the continents drifted in order to explain zoogeography, and mentioned that Darwin, for instance, established the fact of evolution without being able to prove the cause. He also enquired as to what kind of Collembola reached the Hawaiian Islands, the fauna of these islands being a good index of forms which could survive long sea passages.

Dr. Salmon replied that he could not share Mr. Britton's approach to the theory of continental drift. The interesting feature of the Collembolan fauna of Hawaii was that, although many cosmopolitan genera were represented, very few cosmopolitan species occurred. The very great population density of individuals made it possible for very large numbers, even millions, to be transported on floating rafts, so that even if only a few rafts reached their destination, the survival chances were still very high.

Dr. Hinton said that it was by no means certain that the Middle Devonian *Rhyniella praecursor* was a Collembolan. No specimens had been found with a complete abdomen. Traces of the post-antennal organ, the tenaculum, and the furca were lacking, and a ventral tube had been only doubtfully identified. He thought the Collembola should not be included in the Insecta, since in most respects they differed far more from insects than some other classes of the subphylum Antennata, e.g. Symphyla and Diplura. It was now reasonably certain that hexapod Antennata had been independently derived from myriapod ancestors at least three times. Dr. Hinton said that arguments for or against

Wegener's theory based on the distribution of recent insects suffered from the fact that we were hardly ever certain of their distribution in former times owing to the very poor fossil material. He said his own support for Wegener's theory was largely based on geological grounds. For instance, the distribution of Permo-Carboniferous glacial tillites was such that if the continents were then in the positions they are now, the whole of the Southern Hemisphere must have been under ice. The existence of an ice sheet of this size was hardly likely in view of the tropical conditions that prevailed at the same time in many parts of the Northern Hemisphere, as is shown by the coal deposits of Europe, China and N. America. If Wegener's reconstruction of the Permo-Carboniferous continents is approximately correct, we are no longer faced with a quite impossible conjunction of climates. The alternation of glacial tillites and coal deposits in New South Wales also becomes comprehensible.

Dr. C. B. Williams carried Mr. Britton's criticism of Dr. Salmon's remarks on the theory of continental drift further and maintained that even if it was not generally accepted, it should be open to discussion on entomological grounds. He also said he felt the speaker had ruled out too easily the possibility of air drift. Dust storms and wind currents could carry these insects considerable distances, probably at great heights. In his experience desiccation would not be a serious factor. Dr. Salmon agreed that wind drift was a possibility, although there was little evidence to support it. Much dust was blown from Australia to New Zealand, but there were no records of any *Collembola* arriving in that way. He felt the theory applied more to insects normally living in the air, such as butterflies and moths.

Professor Varley said that insects could most easily be transported by hurricanes when the upper atmosphere was very wet; desiccation was therefore not a factor to be reckoned with in transport by air under these conditions. He mentioned that snowfields at the tops of mountains afforded the best opportunities of testing such transport. Simple observation might show the extent to which *Collembola* were carried.

Mr. Zimmerman said the distribution of small apterous forms was not as limited as was usually thought. On many oceanic islands in the Pacific small apterous endemic insects predominated. He agreed with Professor Varley that desiccation during air transport may not be as important as supposed. Tropical hurricanes which could carry many insects were usually accompanied by high humidity and torrential rains. Eggs might also be carried, and may have an even greater chance of survival than adults. In Hawaii even recently introduced forms were found in the depths of the native jungle, far from human habitation; conversely, other introduced forms were very localized around the port of entry. It was difficult to fit the *Collembola* found in Hawaii into the general definition of the other endemic groups, all of which have developed local complexes of peculiar forms. The soil faunas of the islands are poor, and although other groups have their distinctive endemic species, no peculiar endemic Hawaiian *Collembola* have been found. In the mountains the snowfields are at times pitted with large numbers of insects which have been blown up from below.

Dr. van Emden said that Dr. Salmon's map reflected the late Tertiary Mountain ranges, genera which had been transmitted along these lines being the more recently developed. The widely distributed forms, on the other hand, would appear more likely to have been carried by trade, logs, etc., than to be very old forms. The drifting process in Wegener's theory is not quite so unlikely if the land masses are



not imagined as floating on a liquid, but as moving gradually like a wandering bullet in the body. Land bridges on the other hand appear quite possible if the huge extents of oceanic deposits on present land are remembered, which occurred even as recently as in the miocene.

Dr. Hugh Scott recalled the conclusions reached by the late Dr. George H. Carpenter on the Collembola of the Seychelles, and by Dr. E. Handschin on those of the central Abyssinian highlands. In these conclusions, dated respectively 1916 and 1929, continental drift was not mentioned. Carpenter thought the Collembola of the Seychelles to be a remnant of an ancient continental fauna, but that the absence of the higher sub-order (Symphypleona) indicated severance of the connections between the Seychelles land-area and the continents in the remote past, before these higher forms had spread so far. If ancestral forms of Collembola had been conveyed to the islands across the sea, many more species than is the case might have colonized the groups of coral islands rising from separate submerged banks in the western Indian Ocean. In regarding the affinities of the Seychelles Apterygota as Oriental rather than Ethiopian, Carpenter agreed with the general findings on the Coleoptera and certain other insects. On the other hand, Handschin found that the Seychelles Collembola include representatives of African, as well as "Asiatic-Papuan" genera.

On the question of insects being blown up to great heights, Dr. Scott suggested that Dr. Handschin's work on those found above the snow-line in the Alps should be consulted.

Dr. J. L. Cloudsley Thompson said small animals might have the advantage of not being pulled down by air currents and even when they have little wax layer they probably would not suffer desiccation, such small insects moving with the air instead of through it. He had himself found on an ice cap in N.W. Iceland Collembola which must have reached there by air.

Dr. Hickin asked for information as to the amount of fluctuation of ocean level which was estimated to have taken place, and if there was any explanation as to how large animals got across the Behring Strait. Dr. Salmon replied that changes up to 400 feet were thought to have occurred.

Mr. Zimmerman said there was no question but that there had been dry land across the Behring Strait, which was now very shallow sea. Fluctuations of great magnitude in sea level had occurred all over the world, and volcanic activity alone had resulted in the outpouring of vast amounts of material which has caused such a rise in sea level that the face of the earth has been altered.

E. B. BRITTON, *Hon. Secretary.*

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The next meeting will be held in Manchester, on Saturday and Sunday, 21st and 22nd July, 1951. (See page 27).

## NOTICES

In addition to the *Transactions and Proceedings* (Series A, B and C), the following publications are available on application at the Society's rooms :—

THE GENERIC NAMES OF BRITISH INSECTS, WITH CHECK LISTS OF THE SPECIES, prepared by the Committee on Generic Nomenclature of the Royal Entomological Society of London, with the assistance of the Department of Entomology of the British Museum (Natural History) :—

### Part 1. Recommendations relating to the publication of the Committee's

Reports	Price	6d.
2. Rhopalocera .. .. .	3s.	6d.
3. Odonata .. .. .	3s.	6d.
4. Neuroptera .. .. .	3s.	6d.
5. Hymenoptera Aculeata .. .. .	15s.	0d.
6. Coleoptera Carabidae .. .. .	10s.	0d.
7. Coleoptera Hydradephaga .. .. .	5s.	0d.
8. Hemiptera Heteroptera .. .. .	39s.	0d.
9. Coleoptera Staphylinidae .. .. .	40s.	0d.

### HANDBOOKS FOR THE IDENTIFICATION OF BRITISH INSECTS.

The Society has undertaken the issue of a series of publications intended to provide illustrated Keys to the whole of the British Insect Fauna so far as this is possible.

It is proposed to cover this field in a series of ten volumes, arranged as follows :—

- |  |                             |
|--|-----------------------------|
| I. Part 1. General Introduction.                             | Part 9. Ephemeroptera.†     |
| " 2. Thysanura.  | " 10. Odonata.†             |
| " 3. Protura.  | " 11. Thysanoptera.*        |
| " 4. Collembola.*  | " 12. Neuroptera.           |
| " 5. Dermaptera and Orthoptera.†                             | " 13. Mecoptera.            |
| " 6. Plecoptera.†  | " 14. Trichoptera.          |
| " 7. Psocoptera.*  | " 15. Strepsiptera.         |
| " 8. Anoplura.   | " 16. Siphonaptera.         |
| II. Hemiptera.*  | III. Lepidoptera.           |
| IV. Coleoptera.*   | V. Coleoptera.*             |
| VI. Hymenoptera : Symphyta* and Aculeata.*                   |                             |
| VII. Hymenoptera : Ichneumonidea.*                           |                             |
| VIII. Hymenoptera : Cynipoidea, Chalcidoidea and Serphoidea. |                             |
| IX. Diptera : Nematocera† and Brachycera.                    | X. Diptera : Cyclorrhapha.* |

The following parts are now available :—

- Vol. I, Part 5. Dermaptera and Orthoptera. By W. D. Hincks. Price 3s. 6d. plus postage.
- Vol. I, Part 6. Plecoptera. By D. E. Kimmins. Price 3s. 6d. plus postage.
- Vol. I, Part 9. Ephemeroptera. By D. E. Kimmins. Price 3s. 6d. plus postage.
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- Vol. IX, Part 1. Diptera : Introduction and Key to Families. By H. Oldroyd. Price 7s. 6d. plus postage.
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Parts marked † are on sale or in the press, those marked \* in preparation.

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Fellows of the Society may purchase one copy at a discount of 25 per cent. ; additional copies at the full published price.

### STYLOPS, a Journal of Taxonomic Entomology.

1932-1935. Vols. 1-4 (all issued). Price £1 16s. 0d. each ; to Fellows £1 7s. 0d.

ABSTRACT OF PROCEEDINGS OF THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON. 1935. Nos. 1-6 (all issued). 3s. 0d.

HUBNER : A BIBLIOGRAPHICAL AND SYSTEMATIC ACCOUNT OF THE ENTOMOLOGICAL WORKS OF JACOB HUBNER AND THE SUPPLEMENTS THERETO. In 2 vols. By Francis Hemming. Price Vol. 1. 605 pp. £1 15s. 0d. ; Vol. 2. 275 pp. 15s. 0d.

THE HISTORY OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1833-1933. By S. A. Neave, assisted by F. J. Griffin. Price 10s. 6d.

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